

REMARKS

Claims 1 and 3-110 are pending in the application. Claims 1-6, 13-64, and 69-71 have been withdrawn from consideration. Claims 7-12, 65-68, and 72-110 are currently under consideration.

Claims 7 and 74-78 have been amended to clarify that the instrument comprises at least one filter communicating between the first passage and a path of liquid filtrate flow, the path of liquid filtrate flow operative to move liquid filtrate therealong by capillary action, the first passage leading to a portion thereof proceeding tangentially past openings of each filter and to an expanded liquid flow path for drawing liquid therealong by capillary action, the expanded liquid flow path comprising multiple liquid flow paths sized for capillary action and each opening from the first passage downstream of each filter, the number and dimensions of the liquid flow paths of the expanded liquid flow path being chosen to prolong the flow of liquid of the sample past each filter to accomplish a continuous flow of a duration sufficient to separate filtrate from at least a nanoliter of the liquid of the sample.

Claims 65 and 67-68 have been amended to clarify that the instrument comprises at least one filter communicating between the first passage and a location for receiving liquid filtrate from the at least one filter, the at least one filter having filter design parameters chosen for the characteristics of the intended liquid and the desired effect thereof, the first passage leading tangentially past each filter to an expanded flow path for drawing liquid therealong by capillary action, and the expanded flow path defining means for establishing a continuous flow of the liquid of the sample past the filter location for an extended period of time so as to pass liquid past and through the filter.

Claims 81, 85, 91, 95, and 97 have been amended to clarify that the instrument comprises at least one filter at the downstream location communicating between the first passage and a path of liquid filtrate flow, and an expanded liquid flow path including a plurality of at least five liquid flow paths in communication with the first passage downstream location and sized to continue to draw liquid of the sample tangentially past each filter and therealong concurrently by capillary action to thereby prolong the period of continuous flow of liquid in the instrument and increase the volume of flow of liquid in the instrument to more than a nanoliter solely by capillary action.

Claim 98 has been amended to clarify that the instrument comprises liquid receiving means downstream of the input and in communication therewith for enabling one of analysis, treatment and observation of liquid of the specimen, wherein the liquid receiving means for enabling comprises at least one filter; and means in liquid flow communication for maintaining a tangential flow of the liquid specimen past each filter and through the liquid receiving means by capillary action.

Support for these amendments can be found at least in FIG. 1, FIG. 2, and the corresponding descriptions thereof. Accordingly, no new matter has been introduced by these amendments.

I. REJECTIONS UNDER 35 U.S.C. § 102

The Office Action continues to reject Claims 7-10, 65-68, 72-83, 85, 87-92, 97-105, and 107-110 under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 6,090,251 to Sundberg et al. (hereinafter “Sundberg”). To that end, it is well established that a novelty defeating reference under 35 U.S.C. § 102 must disclose each and every feature of a claimed invention. As set forth below, Applicants respectfully submit that Sundberg fails to disclose each and every feature of Applicants’ claims and therefore the instant rejections should be withdrawn.

A. Independent Claim 7

Claim 7 is directed to an instrument for the observation, treatment or analysis of a liquid based on a drop size sample and comprises, in part, at least one filter communicating between a first passage and a path of liquid filtrate flow. The first passage leads to a portion thereof proceeding tangentially past openings of each filter and to an expanded liquid flow path for drawing liquid therealong by capillary action. Still further, the expanded flow path comprises multiple liquid flow paths sized for capillary action and each opening from the first passage downstream of each filter.

In rejecting Claim 7 and those claims depending therefrom, the Examiner contends with reference to FIG. 7 that Sundberg discloses multiple flow paths **78** that effectively provide a tangential flow past at least a first weir type filter element **90**. Although Applicants do not agree with the Examiner’s interpretation of FIG. 7, the multiple flow paths **78** do not provide tangential

flow past each filter as claimed. In fact, each of the liquid flow paths 78 as identified by the Examiner would provide a liquid flow through a filter 90 as opposed to a tangential flow past each filter. Moreover, the liquid flow paths 78 as identified by the Examiner do not open from the first passage downstream of each filter. This is again evidenced by the fact that a liquid flow entering each of the liquid flow paths 78 must pass through at least one of the alleged filters 90. Accordingly, for at least these reasons, Sundberg does not disclose every feature of independent claim 7 and those claims depending therefrom.

B. Independent Claim 65

Claim 65 is also directed to an instrument for the observation, treatment or analysis of a selected liquid and similarly comprises at least one filter communicating between a first passage and a location for receiving liquid filtrate from the at least one filter. The first passage again leads tangentially past each filter to an expanded flow path for drawing liquid there along by capillary action. Thus, the expanded flow path is tangentially downstream from each filter.

In rejecting Claim 65, the Examiner again contends with reference to FIG. 7 that Sundberg discloses multiple flow paths 78 that effectively provide a tangential flow past at least a first weir type filter element 90. However, as noted above, these multiple flow paths 78 (which the Examiner contends provide the claimed expanded flow path) are not positioned tangentially downstream from each filter. This is again evidenced by the fact that a liquid flow entering each of the liquid flow paths 78 must pass through at least one of the alleged filters 90 and therefore cannot be positioned tangentially downstream from each filter. Accordingly, for at least these reasons, Sundberg does not disclose every feature of independent claim 65 and those claims depending therefrom.

C. Independent Claim 81

Claim 81 is directed to an instrument for the observation, treatment or analysis of a sample of a liquid and comprises a first passage leading from a liquid input opening to a downstream location. The instrument further comprises at least one filter at the downstream location communicating between the first passage and a path of liquid filtrate flow. An expanded liquid flow path is also provided, including a plurality of at least five liquid flow paths in communication with the first passage downstream location and sized to continue to draw liquid of the sample tangentially past each filter and there along concurrently by capillary action.

In contrast, Sundberg does not disclose multiple liquid flow paths that draw liquid tangentially past each filter. Rather, as described above, each of Sundberg's multiple flow paths 78 (as identified by the Examiner) would require passage of a liquid through at least one of the alleged filters 90. Because the liquid would be drawn through at least one filter, it necessarily follows that the multiple flow paths 78 cannot draw liquid tangentially past each filter. Accordingly, for at least this, Sundberg does not disclose every feature of independent claim 81 and those claims depending therefrom.

D. Independent Claim 98

Claim 98 is directed to an instrument comprising an input for accepting a liquid specimen, liquid receiving means downstream of the input and in communication therewith for enabling one of analysis, treatment and observation of liquid of the specimen, wherein the liquid receiving means for enabling comprises at least one filter. The instrument further comprises means in liquid flow communication for maintaining a tangential flow of the liquid specimen past each filter and through the liquid receiving means by capillary action.

Once again, in rejecting Claim 98, the Examiner contends with reference to FIG. 7 that Sundberg discloses multiple flow paths 78 that effectively provide a tangential flow past at least a first weir type filter element 90. However, Sundberg does not disclose any means for maintaining a tangential flow of liquid specimen past each filter 90. In fact, pursuant to the Examiner's interpretation of Sundberg, the multiple flow paths 78 each require passage of a liquid through at least one of the alleged filters 90. Because the liquid would be drawn through at least one filter, it necessarily follows that the multiple flow paths 78 cannot draw liquid tangentially past each filter. Therefore, Sundberg does not disclose the claimed means for maintaining a tangential flow of the liquid specimen past each filter.

II. REJECTIONS UNDER 35 U.S.C. § 103

The Office Action has further rejected a number of Claims as allegedly being obvious on a number of grounds. In particular, Claims 11, 12, 84, 86, 93-96, and 106 have been rejected under 35 U.S.C. § 103(a) as allegedly being obvious over the teachings of Sundberg further in view of Quake. Claims 81-97 have also been rejected under 35 U.S.C. § 103(a) as allegedly being obvious over "Brody" in view of Quake. To that end, in order to establish a *prima facie*

case of obviousness, the art of record must teach, or at least suggest, the claimed invention as a whole. Moreover, there must be adequate motivation and a reasonable expectation of success to undertake the proposed modifications. As set forth below, Applicants respectfully submit that this standard has not been met by the instant rejections and, as such, the rejections under 35 U.S.C. § 103(a) should be withdrawn.

A. Rejection of Claims 11, 12, 84, 86, 93-96, and 106

In rejecting Claims 11, 12, 84, 86, 93-96, and 106, the Examiner contends that it would also have been obvious for one of ordinary skill in the art to modify Sundberg's microfluidic instrument by incorporating Quake's teachings of laser optic detection systems as well as certain channel lengths, in order to arrive at Applicants' claimed instruments. To that end, it is axiomatic that "dependent claims are non-obvious under section 103 if the independent claims from which they depend are non-obvious." *See In re Fine*, 5 U.S.P.Q.2d 1596, 1600 (Fed. Cir. 1988). As set forth in detail above, independent claims 7, 81, and 98, the independent claims from which claims 11, 12, 84, 86, 93-96, and 106 depend, are non-obvious and in condition for allowance over the cited art. Therefore, for at least this reason alone, it necessarily follows that dependent claims 11, 12, 84, 86, 93-96, and 106 are also non-obvious and in condition for allowance. To that end, as set forth above, Sundberg fails to teach or even suggest an instrument comprising at least one filter wherein liquid is drawn tangentially past each filter of the claimed instrument. The proposed incorporation of Quake's laser optic detection systems as well as certain channel lengths does not rectify this deficiency. Therefore, Applicants respectfully submit that the instant rejection of Claims 11, 12, 84, 86, 93-96, and 106 is in error and should be withdrawn.

B. Rejection of Claims 81-97

In rejecting Claims 81-97 over the combined teachings of Brody and Quake, the Examiner initially acknowledges that Brody fails to teach or suggest a device that uses an expanded flow path or plurality of liquid flow channels. As such, the Examiner contends that it would have been obvious for one of ordinary skill in the art to use the teachings of Quake in the teaching of Brody for the analysis of the filtered samples as taught by Brody. In other words,

the rejection essentially proposes utilizing Quake's plurality of capillary flow paths (32) leading from a reservoir (48) to an analyzer (50) to analyze the filtered samples as taught by Brody. This proposed combination still fails to teach or suggest the instrument of Claims 81-97.

Claim 81 is directed to an instrument for the observation, treatment or analysis of a sample of a liquid and comprises a first passage leading from a liquid input opening to a downstream location. The instrument further comprises at least one filter at the downstream location communicating between the first passage and a path of liquid filtrate flow. An expanded liquid flow path is also provided, including a plurality of at least five liquid flow paths in communication with the first passage downstream location. The plurality of at least five liquid flow paths are sized to continue to draw liquid of the sample tangentially past each filter and there along concurrently by capillary action.

Since the Examiner's rejection is premised upon utilizing the features of Quake to analyze filtered samples as taught by Brody, the features of Quake would necessarily need to be incorporated downstream of Brody's filter component 5. By incorporating the plurality of capillary flow paths (32) downstream of Brody's filter, it also necessarily follows that the proposed modification would still fail to provide a plurality of liquid flow paths configured to continue to draw a liquid sample tangentially past the filter of Brody, rather than through it. Therefore, even assuming arguendo that one of ordinary skill in the art would seek to combine the disclosures of Brody and Quake as proposed, the resulting combination would still fail to render the claimed invention obvious, and thus Applicants' respectfully request that the rejection of Claims 81-97 be withdrawn.

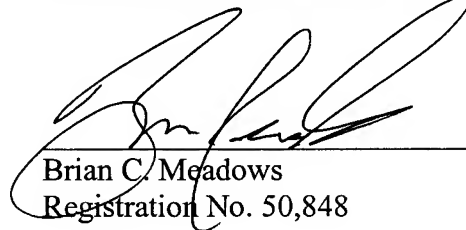
CONCLUSION

In view of the foregoing Amendments and Remarks, it is respectfully asserted that the rejections set forth in the Office Action of August 28, 2007 have been overcome and that the application is in condition for allowance. Therefore, Applicants respectfully seek notification of same.

A credit card payment in the amount of \$810.00 will be authorized via the Electronic Filing System concurrent with the filing of this correspondence. The payment of \$810.00 is submitted for the requisite Request for Continued Examination fee under 37 C.F.R. § 1.17(e). This amount is believed to be correct; however, the Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 14-0629.

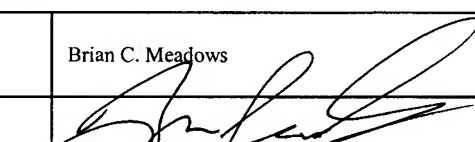
Respectfully submitted,

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